CR6/lil 11/21/2019

FILED
11/21/19
02:35 PM

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Adopt Biomethane Standards and Requirements, Pipeline Open Access Rules, and Related Enforcement Provisions.	Rulemaking 13-02-008

ASSIGNED COMMISSIONER'S SCOPING MEMO AND RULING OPENING PHASE 4 OF RULEMAKING 13-02-008

Summary

This Ruling opens Phase 4 of Rulemaking (R.) 13-02-008. Phase 4 will address two issues: (1) standards for injection of renewable hydrogen into gas pipelines, and (2) implementation of Senate Bill (SB) 1440 (2018, Hueso).

California has been advancing the deployment of hydrogen throughout the state as a zero-emissions fuel. The California Air Resources Board (CARB) and California Energy Commission (CEC) already have programs to assess the status of and promote the development of infrastructure for hydrogen within the state. This proceeding will provide the opportunity to expand hydrogen use to offset the use of fossil fuels by establishing standards and interconnection protocols for injecting renewable hydrogen into natural gas pipelines.

Additionally, this phase of the proceeding will implement Senate Bill 1440 (2018, Hueso) to consider adopting biomethane procurement targets or goals.

1. Background

Assembly Bill (AB) 1900 (2012, Gatto) required that the Commission open a rulemaking to ensure that each gas corporation provide non-discriminatory

open access to its gas pipeline system to any party for the purposes of physically interconnecting with the gas pipeline system and effectuating the safe delivery of gas.[1] Accordingly, on February 13, 2013, the Commission opened Rulemaking, R.13-02-008, Order Instituting Rulemaking to Adopt Biomethane Standard and Requirement, Pipeline Open Access Rules, and Related Enforcement Provisions.

In collaboration with CARB and the Office of Environmental Health Hazard Assessment (OEHHA), the Commission determined that biomethane could be safely injected into the natural gas pipeline system in Decision (D.) 14-01-034 (adopted January 16, 2014). D.14-01-034 adopted Pipeline injection standards for 17 "constituents of concern" potentially found in biomethane. Hydrogen is one of the 17 "constituents of concern" and an injection standard of 0.1% of hydrogen was adopted for biomethane injected into gas pipelines.[2] The statute directs that the pipeline injection standards shall be revisited every five years.[3]

SB 840 (2016 Budget Bill) directed the Commission to re-evaluate the biomethane injection standards for heating value and siloxane based on the independent study conducted by the California Council of Science and

[1] AB 1900 (Gatto 2012), https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201120120AB1900.

[2] SoCalGas Rule 30 Section I requires that natural gas transported by the Utility "shall not contain in excess of four percent (4%) total inerts (the total combined carbon dioxide, nitrogen, oxygen and any other inert compound) by volume." Hydrogen gas is an inert gas that is subject to this provision. PG&E Gas Rule 21 does not explicitly specify the current allowable level of Hydrogen gas in natural gas in its pipelines.

[3] *See* Health & Safety Code, §§ 25421(a) and 25421(e).

Technology.[4],[5] D.19-05-018 (adopted on May 16, 2019), updated heating value standards, maintained current siloxane standards but modified testing requirements, and required the utilities to modify their pipeline interconnection tariff to implement the changes. The injection standard for hydrogen in biomethane was not re-evaluated at that time.

Phase 2 of this proceeding, resulting in D.15-06-029 (adopted June 11, 2015), developed a $40 million biomethane project pipeline interconnection incentive program. AB 2313 (2016, Williams) increased the incentive amounts and extended the program end date until 2021.[6] These changes were implemented in D.16-12-043 (adopted December 15, 2016). A proposed decision establishing an incentive payment reservation system for participation in this program was filed and served on November 1, 2019.

Phase 3 of this proceeding addresses the need for a standard statewide renewable gas interconnection tariff and interconnection agreement. This was a topic at the Energy Division Workshop held on May 23, 2019 and is in development. An August 22, 2019 Ruling establishes a schedule for development of the standard tariff. On November 1, 2019, the IOUs submitted a proposed Joint Utilities Renewable Gas Interconnection Rule. A workshop on this proposal was held on November 13, 2019.

[4] SB 840 (2018 Budget Bill), https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB840.

[5] Biomethane in California Common Carrier Pipelines: Assessing Heating Value and Maximum Siloxane Specifications, June 2018, https://ccst.us/reports/biomethane/.

[6] AB 2313 (Williams 2016), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB2313.

2. Hydrogen Legislation and Infrastructure Development

SB 1505 (2006, Lowenthal) established a state goal to promote the development of hydrogen infrastructure. It requires that at least 33% of hydrogen produced for fueling stations that receive state funds is sourced from eligible renewable energy resources.[7]

In addition, SB 1369 (2018, Skinner) directed the Commission, State Air Resources Board, and Energy Commission to consider green electrolytic hydrogen (i.e., hydrogen not produced from a fossil fuel feedstock) as an eligible form of energy storage and consider other potential uses of green electrolytic hydrogen.[8]

AB 8 (2013, Perea) directed expenditure of $20 million dollars annually to develop hydrogen refueling stations and support the early fuel cell electric vehicle market.[9] Pursuant to AB 8, CARB and CEC publish an Annual Joint Agency Staff Report, which assesses existing and potential hydrogen networks to support the fuel cell electric vehicle market under CEC's Alternative and Renewable Fuel and Vehicle Technology Program.[10]

In January 2018, Governor Brown issued Executive Order B-48-18, setting a goal of 5 million zero emissions vehicles by 2030, including both fuel cell electric and battery electric vehicles. To achieve this goal, Governor Brown called for the

[7] *See* Health and Safety Code § 43869(b)(2).

[8] *See* Public Utilities Code § 400.2.

[9] AB 8 (Perea 2013), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB8.

[10] California Energy Commission and California Air Resources Board Joint Agency Staff Report on Assembly Bill 8: 2018 Annual Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations in California, December 2018, CEC-600-2018-008.

state to construct 200 hydrogen refueling stations by 2025.[11] The Governor's Interagency Working Group on Zero-Emission Vehicles published the 2018 ZEV Action Plan which encourages the use of hydrogen fueling station targets to organize market participants and realize tangible infrastructure growth for hydrogen.[12]

As a result of existing agency efforts, by the end of 2018, there were 39 publicly available hydrogen refueling stations in California, including one privately funded operation, and 26 additional stations fully funded and in various stages of development.[13]

3. Addressing Hydrogen in the Proceeding

The Phase 3 Scoping Memo in this proceeding stated that "it is my future intention to consider issues within this, or a successor proceeding, that pertain to the safe, cost-effective development of other renewable gases, such as renewable hydrogen."[14] In response to the Scoping Memo, numerous parties (including AASI, AquaHydrex, Giner ELX, H2Safe, Harvest Power, CHBC, Hydrogenics, NFCRC, Bloom Energy, Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SoCalGas), San Diego Gas & Electric Company

[11] Governor Brown Takes Action to Increase Zero-Emission Vehicles, Fund New Climate Investments, January 2018, https://www.ca.gov/archive/gov39/2018/01/26/governor-brown-takes-action-to-increase-zero-emission-vehicles-fund-new-climate-investments/index.html.

[12] 2018 ZEV Action Plan, September 2018, http://business.ca.gov/Portals/0/ZEV/2018-ZEV-Action-Plan-Priorities-Update.pdf.

[13] California Energy Commission and California Air Resources Board Joint Agency Staff Report on Assembly Bill 8: 2018 Annual Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations in California, December 2018, CEC-600-2018-008.

[14] R.13-02-008 Scoping Memo, July 5, 2018, at 7.

(SDG&E), and Southwest Gas Corporation) requested that we include hydrogen in the scope of this proceeding.

California has been advancing the deployment of hydrogen throughout the state as a zero-emissions fuel. The CARB and CEC already have programs to assess the status of and promote the development of infrastructure for hydrogen within the state. I agree that this proceeding should establish safe standards that will enable injection of renewable hydrogen into gas pipelines to reduce the carbon intensity of the gas used in the state. CHBC, SoCalGas, and SDG&E state that one of the issues included in the original Order Instituting Rulemaking for this proceeding was "to ensure that each gas corporation provides non-discriminatory open access to its gas pipeline system to any party for the purposes of physically interconnecting with the gas pipeline system and effectuating the safe delivery of gas."[15] Thus, they note that hydrogen gas and its access to the natural gas system is already included within the scope of this proceeding.

Among commenters, most parties requested that the Commission establish injection standards and interconnection protocols for hydrogen. Bloom states that "[t]ransport of RNG through the common carrier pipeline system will make this renewable resource [hydrogen] accessible to a broad geography and wide array of consumers."[16] Aquahydrex states that "[a]llowing hydrogen to be used in the existing infrastructure and determining appropriate blend levels and other critical infrastructure items enables an important renewable gas expansion...."[17]

[15] Order Instituting Rulemaking into Biomethane Issues, Pipeline Open Access, And Related Enforcement Provisions (dated February 13, 2013), at 12.

[16] Bloom Energy, "Reply Comments on Amended Scoping Memo," July 27, 2018, at 2-3.

[17] AquaHydrex, Inc. Motion for Party Status, issued July 20, 2018, at 2.

Climate Resolve and Dairy Cares filed reply comments that opposed including hydrogen in this proceeding. Dairy Cares states that the complexity of hydrogen injection would considerably delay the progression of this proceeding. Dairy Cares also raises concerns about the potential ratepayer cost of developing and injecting renewable hydrogen.

On May 24, 2019, the Energy Division held a workshop on Standards Required to Inject and Interconnect Renewable Methane and Hydrogen Projects. In the workshop, representatives from the CEC and CARB discussed state-led efforts on hydrogen deployment, the IOUs discussed the status of utility efforts for hydrogen interconnection, and the hydrogen industry and academic experts provided updates on research efforts and technologies.[18]

4. Consideration of Hydrogen Injection in Phase 4

The existing efforts and research status on hydrogen affirm that the issue is ripe for consideration. Accordingly, the new phase of this proceeding will establish injection standards and interconnection protocols for renewable hydrogen connecting to the natural gas pipeline system to ensure safety and integrity of the gas delivery system and compatibility with end-uses. As part of this effort, it may also be appropriate to re-evaluate the hydrogen standard for biomethane injected into pipelines.

SoCalGas and SDG&E requested that the Commission administer an independent third-party study to provide recommendations for hydrogen injection standards.[19] CHBC, PG&E, Aquahydrex, and Hydrogenics requested

[18] Commission, Workshop: To Consider a Standard Renewable Natural Gas Interconnection Tariff and an Inquiry into Standards Required to Inject and Interconnect Renewable Methane and Hydrogen Projects, https://www.cpuc.ca.gov/renewable_natural_gas/.

[19] SoCalGas and SDG&E, "Comments on Amended Scoping Memo," July 27, 2018, at 12.

that the Commission initiate a series of workshops on hydrogen as well. I agree that more technical expertise is needed to determine the maximum safe level of hydrogen blend in pipelines and direct the Energy Division to obtain an expert study that addresses the issues listed below, that were identified in comments and at the May 2019 Workshop.

Because this process will take considerable time and, based on parties' comments and the materials presented at the Workshop, I find it is appropriate to give the utilities the opportunity to propose a Preliminary Injection Standard within 12 months of this Ruling, using available information. After the technical study is completed and evaluated, the Commission will consider further revisions to the injection standards for hydrogen.

At this time, I will not specifically include the issues raised by some commenters regarding hydrogen procurement policies for utilities and the role of hydrogen in renewable electricity integration and energy storage[20] in the scope of this proceeding.

I do not share the concern by some parties that including hydrogen will cause considerable delay in this action, given that hydrogen will be addressed in a new phase of the proceeding, and work has been completed or is well underway on the issues in the other phases.

As noted above, Dairy Cares also raised a concern about the potential ratepayer cost of developing and injecting renewable hydrogen. This phase will address impacts from injecting hydrogen into gas pipelines on safety of the gas delivery system and customer end-uses. This proceeding does not propose any incentive or subsidy for hydrogen injection that would have an impact on

[20] SoCalGas and SDG&E, "Comments on Amended Scoping Memo," at 13.

ratepayers. However, after completion of the technical study, the Commission's determination of an appropriate standard for injection of hydrogen will consider both potential environmental benefits and potential impacts on ratepayers.

5. Interagency Coordination

The Commission has successfully collaborated with the CARB, CEC, OEHHA and the California Department of Food and Agriculture to develop appropriate processes for pipeline injection of biomethane and selection of the dairy pilot projects. This collaboration will continue as the state works towards developing processes for renewable hydrogen.

6. Implementation of SB 1440

SB 1440 was enacted in 2018. Public Utilities Code Section 651(a) provides:

> The commission, in consultation with the State Air Resources Board, shall consider adopting specific biomethane procurement targets or goals for each gas corporation so that each gas corporation procures a proportionate share, as determined by the commission, of biomethane annually. Prior to establishing biomethane procurement targets or goals, the commission shall make both of the following findings:
>
> (1) The targets or goals are cost-effective means of achieving the forecast reduction in the emissions of short-lived climate pollutants pursuant to Section 29730.5 of the Health and Safety Code and other greenhouse gases pursuant to Division 25.5 (commencing with Section 38500) of the Health and Safety Code.
>
> (2) The targets or goals comply with all applicable state and federal law.

Section 651(b) of the statute sets forth requirements if the Commission adopts biomethane procurement targets or goals.

(b) If the commission adopts specific biomethane procurement targets or goals for each gas corporation pursuant to subdivision (a), the commission shall do all of the following:

(1) Consider the recommendations developed pursuant to Section 39730.8 of the Health and Safety Code.

(2) Ensure the targets or goals are consistent with the organic waste disposal reduction targets specified in Section 39730.6 of the Health and Safety Code and the regulations adopted pursuant to Section 42652.5 of the Public Resources Code to achieve those targets.

(3) Ensure that biomethane eligible for any procurement program meets one of the following conditions:

(A) The biomethane is delivered to California through a dedicated pipeline.

(B) The biomethane is delivered to California through a common carrier pipeline and meets both of the following requirements:

(i) The source of biomethane injects the biomethane into a common carrier pipeline that physically flows within California, or toward the end user in California for which the biomethane was produced.

(ii) The seller or purchaser of the biomethane demonstrates that the capture or production of biomethane directly results in at least one of the following environmental benefits to California:

(I) The reduction or avoidance of the emission of any criteria air pollutant, toxic air contaminant, or greenhouse gas in California.

(II) The reduction or avoidance of pollutants that could have an adverse impact on waters of the state.

(III) The alleviation of a local nuisance within California that is associated with the emission of odors.

Implementing SB 1440 will require the following actions:

- The Commission will consult with the State Air Resource Board. This consultation has begun and will lead to a staff report.
- The Commission must determine whether it can make the findings in Section 651(a)(1) and (2).
- If those findings are made, then the Commission must consider the following issues:
    - What are appropriate biomethane procurement targets for each gas corporation?
    - Could the procurement targets be met by any renewable gas that complies with applicable pipeline injection standards?
    - The recommendations developed pursuant to Health and Safety Code section 39730.8 (Section 651(b)(1))
    - Are the targets or goals consistent with waste disposal requirements of Health and Safety Code 39730.6 and regulations adopted pursuant to Public Resources Code 42652.5. (Section 651(b)(2))
    - How to determine if the biomethane procurement meets the requirements set forth in Section 651(b)((3)(B)(i)?
    - How to demonstrate that the biomethane procurement meets at least one of the requirements of Section 651(b)(3)(B)(ii)?
    - How will IOUs recover the costs of meeting procurement targets? What is the expected impact on rates?

In view of the foregoing discussion,

IT IS RULED that:

1. This phase of the proceeding will implement Senate Bill (SB) 1440 (2018, Hueso) by taking the actions identified above. Parties may submit comments on

the scope set forth above for implementation of SB 1440, and may suggest any additional issues that should be included in that scope. These comments shall filed by January 10, 2020.

2. The Commission will host a workshop to discuss SB 1440 implementation with parties on December 6, 2019.

3. This phase of the proceeding will also establish appropriate standards and interconnection protocols for injection of renewable hydrogen into the natural gas pipeline system to ensure safety and integrity of the gas delivery system and compatibility with end-uses. This may encompass re-evaluating the hydrogen standard for biomethane injected into pipelines.

4. Within 12 months of this Ruling, Pacific Gas and Electric Company, Southern California Gas Company, San Diego Gas & Electric Company, and Southwest Gas Corporation (the Joint Utilities) shall submit an Application with the following proposed additions or revisions to the Standard Renewable Gas Interconnection Tariff:

   a. A definition of renewable hydrogen for purposes of the Tariff;
   b. A Preliminary Renewable Hydrogen Injection Standard;
   c. Any modification to the hydrogen standard for biomethane; and
   d. Any modifications to the interconnection protocols and agreements.

5. The Joint Utilities shall hold at least two meetings of a technical hydrogen interconnection working group, open to all parties to the proceeding, to assist in developing the Application required by Paragraph 4 based on evaluation of available research and practices in other locations. The technical working group shall submit an initial report to the Commission 90 days from this Ruling. The Joint Utilities shall hold additional technical working group meetings as needed

and submit progress reports every 60 days thereafter. The Joint Utilities shall collaborate with Energy Division to ensure that public workshops or webinars are hosted at appropriate times.

6. Independent from the process of establishing a Preliminary Hydrogen Injection Standard, the Energy Division will arrange, and oversee an independent technical study to address the potential impacts of increased hydrogen concentration in California's natural gas storage and delivery system. It is our goal that the study be completed within 18 months of this Ruling. The study shall assess the safety concerns associated with injecting hydrogen into the existing natural gas pipeline system at a variety of percentages and is expected to address the following topics:

a. A recommended maximum hydrogen percentage at which no or minor modifications are needed for natural gas infrastructure and end-use systems, and an assessment of the types of modifications that may be required for higher percentages of hydrogen.
b. An assessment of the impacts on end-use appliances, potential impact on customers' fuel costs, and safety implications.
c. An assessment of the impacts, including degradation, on durability of the existing natural gas pipeline system.
d. An assessment of any impact on natural gas pipeline leakage rates.
e. An assessment of any impact on valves, fittings, materials, and welds due to hydrogen embrittlement.
f. An assessment of any impact on natural gas storage facilities.
g. An assessment of any impact on pipelines under cathodic protection.

h. A survey and analysis of national and international hydrogen blending and injection studies, activities, and regulations.

7. The parties will have an opportunity to file comments and reply comments in response to the Technical Study. The Commission may then determine whether to modify the hydrogen injection standards and/or interconnection protocols. As part of this determination, the Commission shall also consider potential impacts on the environment, including greenhouse gas emissions, and potential impacts on rates.

Dated November 21, 2019, at San Francisco, California.

/s/ CLIFFORD RECHTSCHAFFEN
Clifford Rechtschaffen
Assigned Commissioner